Henryk Gacki

# Biography

> Mathematical studies have brought me the awareness of constant meaningful progress, and philosophy fascinates me like good literature, broadens the horizons, excites the mind – but I cannot apply it. I have to admit that in my younger days I had less respect for the humanities than I do now, but I still miss tools in them, while I like DIY even at home – I just like using tools! Mathematics is the strongest of tools the man could ever apply – it is the most frightening one and at the same time the most beautiful.
>
> – Andrzej Lasota

Andrzej Aleksander Lasota was born on 11th January 1932 in Warsaw. His father Zygmunt, who achieved the rank of colonel during his service in the army, took part in the September Campaign and fought in the Warsaw Uprising. Wartime forced the Lasota family to move to Cracow and then to Poznań, where Andrzej Lasota passed his final exams in the Ignacy Jan Paderewski Public General High School.

**Photo 1.** Andrzej Lasota with his father Zygmunt – the picture Professor never parted with

Immediately after his exams in 1951 Andrzej Lasota came back to Cracow and began to study physics at the Jagiellonian University. Although physics would remain his passion for the rest of his life, he changes his course to mathematics after two years. He says:

I began studying physics because I was interested in it, but fascinated by Ważewski's lectures I turned to mathematics.

I've learned some things from Ważewski, but I am far away from that ideal. First and foremost, you have to love people, love the mathematicians in them. And you have to be truly, deeply happy about your students' results. The other thing is that enthusiasm is contagious. You have to be enthusiasts.

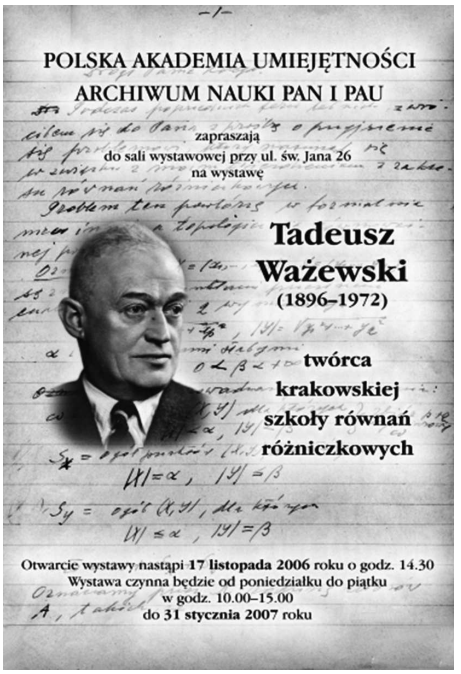



**Photo 2.** Profesor Tadeusz Ważewski

Professor Tadeusz Ważewski (1896–1972) at the time gave lectures for students of physics at the Jagiellonian University. He strove to show the physical and biological substance of mathematical analysis. He attracted exceptional minds with incredible skill. Professor Lasota used to put it in this way:

> What a man that was! Five of his students became members of the Academy of Sciences. There is and has never been another mathematician like him in Poland. We loved him! I was never late to a single one of his lectures. I was very proud when he offered me a position of his assistant.

Andrzej Lasota wrote his Master's thesis in 1955 under the supervision of Professor Tadeusz Ważewski, whom he always remembered in warm words and enormous respect. He received his Ph.D. in 1960 from the Institute of Mathematics of the Polish Academy of Sciences. His dissertation "On a Limit Problem for the Vibrating String Equation" was again supervised by Professor Tadeusz Ważewski.

**Photo 3.** From the left, Professors: Andrzej Pelczar, Czesław Olech, and Andrzej Lasota

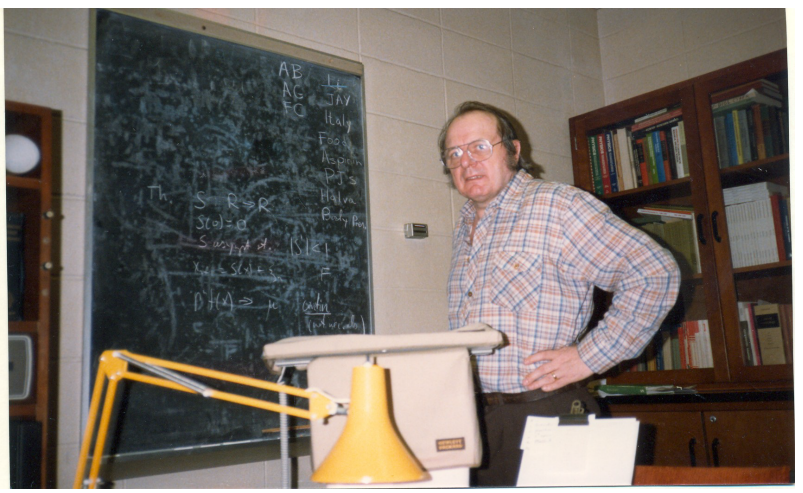


**Photo 4.** Professor Andrzej Lasota, 1972

Four years later he obtained his habilitation degree from the Jagiellonian University, the Faculty of Mathematics, Physics and Chemistry. His habilitation thesis was entitled "On Existence and Uniqueness of Solutions to Nonlinear Differential and Integral Equations," and its results were published in the Polish Academy of Sciences' bulletin.

Professor Lasota's professional and scientific development progressed through his becoming an Associate Professor of mathematical sciences in 1972 and a Full Professor in 1979; a corresponding member of Polish Academy of Sciences in 1983, an ordinary member in 1994; a corresponding member of Polish Academy of Learning since 1997, a full member of this Academy in 2001.

In 1976, Professor Andrzej Lasota moved from Cracow to Katowice and lectured at the University of Silesia. However, those who knew him personally know he was still very attached to the Jagiellonian University. It was where he lectured from 1955 to 2003 and in the years 1972–1975 he was Dean of the Faculty of Mathematics, Physics and Chemistry. Moreover, in 1970–1976 he was Head of the Department of Probability.

**Photo 5.** Professor Andrzej Lasota at the conference organized by AGH University of Science and Technology, Krynica 2001

While emotionally attached to the Jagiellonian University his whole life, Professor Lasota collaborated with the following research and science centers: the Institute of Mathematical Machines in Cracow (1967–1968), where he was head of the lab; the Maria Curie-Skłodowska University as professor in 1986–1988; the Institute of Mathematics of the Polish Academy of Sciences, which he was a part of since 1956 – first as an assistant, then lecturer, and professor in 1995–2006.

**Photo 6.** The Institute of Mathematics of the Polish Academy of Sciences in Warsaw

**Photo 7.** The old building of the Institute of Mathematics of the Jagiellonian University

Since 1976 Professor Lasota continued his didactic and scientific work at the University of Silesia, where he was Head of the Department of Biomathematics and then Head of the Department of Probability. This is where he worked until his death. He used to say:

> There are two things I liked very much: whenever I asked something of the administration of the Jagiellonian University I would hear: Yes, yes, sir, it will be done immediately! – and I knew nothing will be done for another half a year; and here: Oh, sir, this is difficult, please come in two days, or we will call you, we will see what can be done. And usually the issue would be taken care of satisfactorily after two days. This is an example of the famous Silesian work ethics. Here was also the second time I have ever encountered such thirst for knowledge. Silesian students approached studies with an enormous enthusiasm. Whenever I came to a lecture I knew they were waiting for me to tell them about something interesting and important. I had to prepare really well to satisfy those expectations.

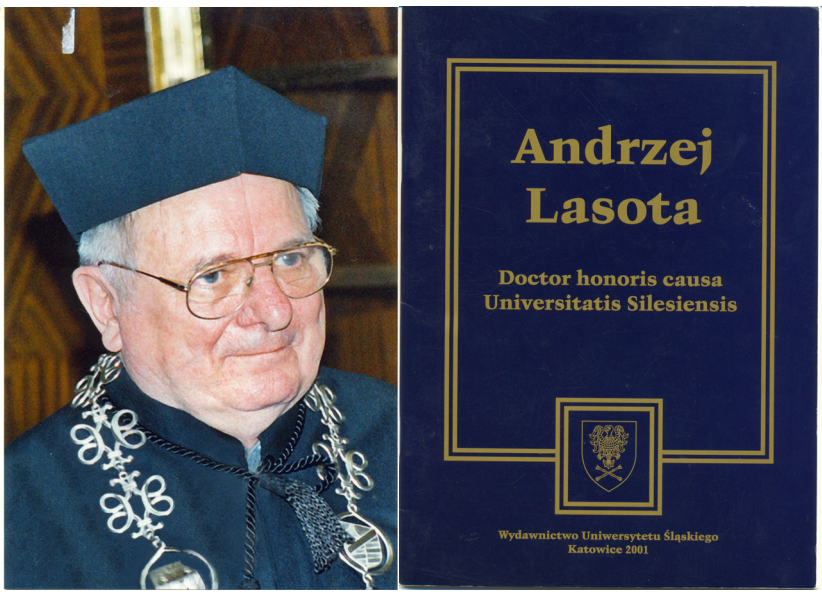



**Photo 8.** Professor Andrzej Lasota, 2001

Professor Lasota loved lecturing and did it exceptionally well. He was always perfectly prepared, and his lectures were full of anecdotes and trivia. Professor Lasota kept saying:

> No professor can impose his opinion on his listeners in mathematics. I got used to that...
>
> ... you have to be like that! Socrates said once he doesn't like winning because it means he hasn't learned anything new...
>
> Students' remarks prove their interest in the lecture, without them I would never catch mistakes. My recent hobby is fractal theory. Once I was talking about constructing fractals imitating a given object. I listed a number of methods and complicated formulas. Then one of the students got up and said it could be done easier. And since then I always present it the way that student showed me, although (I shamefully admit) I don't even remember his name anymore. He was right, and that's the point; and one has to be happy about it!

**Photo 9.** Professor Andrzej Lasota during the lecture at the University of Silesia, Katowice, 2004

Students valued his readiness to discuss the lecture just given.

> You have to show the young people that you can work well at a Polish university, then they will be really attached to Poland. Zdzisław Opial, who was also a great historian, reminded the saying of Pascal – as custom is a second nature, nature is itself only first custom.

**Photo 10.** Professor Andrzej Lasota at the conference organized by AGH University of Science and Technology

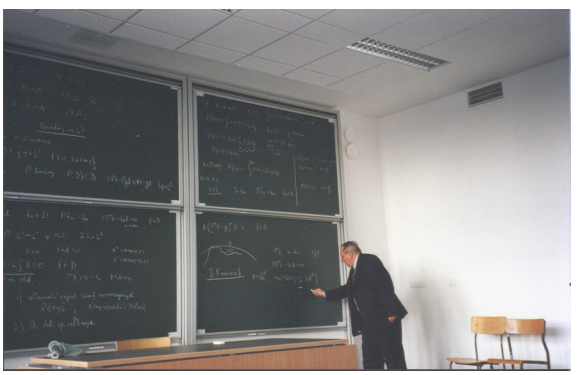


**Photo 11.** Professor Andrzej Lasota giving the Wacław Sierpiński lecture, Warsaw, 2002

Professor Lasota could convince anyone that mathematics is necessary and without hesitation one can devote life to it; he used to say:

> I believe that mathematics is just the structure of our world; not the description of it, but the structure itself. Doubtlessly, a mathematician can create very strange objects and it may seem like he veered far away from reality. This is not the case. If it's good mathematics, it will sooner or later turn out to be a fragment of reality. If it's bad, it is merely a patchwork of shreds of the real world, just like a dream is a patchwork of shreds of our daily life. A dream can be strange, but let's notice that one cannot speak a language one does not know. If the world was different, so would mathematics be different. Moreover, if there was no world, there would be no mathematics – in any sense.

He was gifted with a great sense of humor. Like no-one else he could talk in an interesting way about serious issues, sprinkling his statements with well-thought jokes. In one of his press interwievs, when asked how one creates mathematics, Professor Lasota replied:

> When solving a problem, mathematicians walk around by the blackboard. Sometimes one will come up and write something. A moment later the other will say that it is wrong and erase it. They work in a leisurely manner, but they cannot stop.
>
> My friend's son once said that he wants to be a train driver when he grows up, so that he will not be able to take the locomotive home. Unfortunately, I do take my locomotive home.
>
> I often dream of solutions which, in the morning, do not work.

Professor Lasota was a versatile mathematician. He specialized in both differential equations and probability theory. He was interested in the applications of existing mathematical tools and also in some problems in natural sciences which could suggest new mathematical models. This interest could be seen in his work from the very beginning, when he was still studying physics.

> I'm a bit unusual: I have written about 20 articles on the applications of mathematics. Some of my friends think I lost the way. I only consider mathematics real when it explains various phenomena around us. A science which serves nothing; no-one is good for nothing. One has to take into account that applications of mathematics are rarely immediate (with the exception of a tomography machine). Wonderful discoveries in physics become foundations of new technologies within a couple of decades. In case of mathematics, this time may be much longer, as it is being used by other natural sciences. You apply the whole of it, not just a single theorem.

Fractal theory held a special spot in Professor's interests and he wrote numerous articles on it and loved lecturing it to students.

> Modern art, as well as modern mathematics, and fractal theory in particular, have proven that both human creative possibilities and research fields are vastly wider than we thought a hundred years ago. Let us hope that in a hundred years students of our students will be able to say the same.

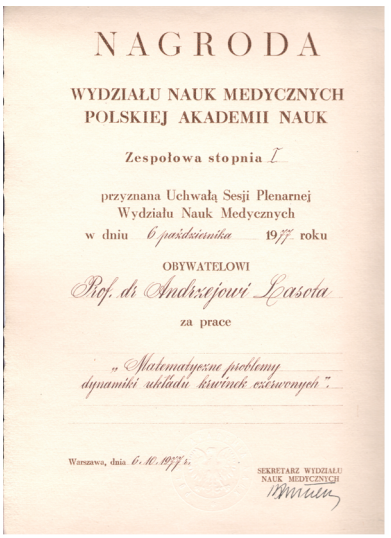
Professor Lasota had not only the courage but also the habit of attacking the hardest problems. He did not copy any methods known so far, but developed his own research methodology. Each of the areas he dealt with was enriched with his results of highest caliber. We owe to him, among others:

- the relation between the existence and uniqueness (uniqueness implies existence) for nonlinear ordinary and partial differential and integral equations;
- the implicit function theorem for non-differentiable functions and the application of this theorem in proofs of existence of solutions to boundary problems and periodical solutions to ordinary differential equations;
- proof that existence of solutions of differential equations with a continuous right hand side is a general property of Banach spaces (jointly with James A. Yorke);
- solution of the Ulam's problem about the existence of an invariant measure for piecewise monotone transformations;
- a Fredholm alternative analogue in the theory of nonlinear operators;

- the lower-bound function method in the theory of Markov operators, which is a strong tool in studying the asymptotic stability of Markov operators;
- the results on asymptotic stability of Markov operators on measures and the description of a new class of sets, which he called semifractals; these results were obtained jointly with J. A. Yorke and J. Myjak.

For his exceptional scientific and organisational achievements Professor Lasota received numerous awards. They include:

- Stanisław Zaremba Award of Polish Mathematical Society, 1967;
- Scientific Award of the III Division of Polish Academy of Sciences, 1969;
- Award of the Secretary of Science of Polish Academy of Sciences, 1974;
- Polish Mathematical Society Award for Applications of Mathematics, 1974.



NAGRODA

WYDZIAŁU NAUK MEDYCZNYCH
POLSKIEJ AKADEMII NAUK

Zespołowa stopnia I

przyznana Uchwałą Sesji Plenarnej
Wydziału Nauk Medycznych
w dniu 6 października 1977 roku

OBYWATELOWI
Prof. dr Andrzejowi Lasota
za prace

„Matematyczne problemy
dynamiki układu krwinek czerwonych"

Warszawa, dnia 6. X. 1977 r.

SEKRETARZ WYDZIAŁU
NAUK MEDYCZNYCH

**Photo 12.** Award of the Division of Medical Sciences of Polish Academy of Sciences, 1977

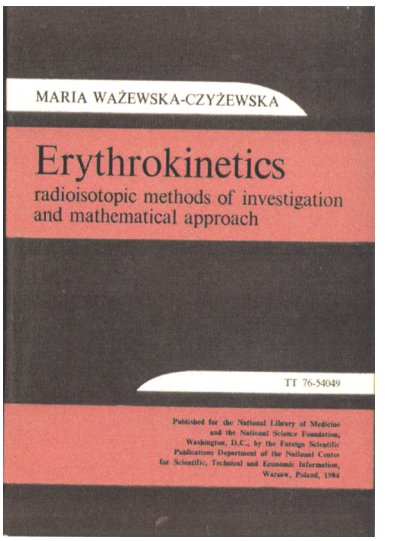



**Photo 13.** The cover of the book by Maria Ważewska-Czyżewska, where she presents, among others, joint work with Andrzej Lasota

Professor Lasota was an exceptionally inspiring scholar for those around him, which explain his many joint papers. Some of them are interdisciplinary in nature. A spectacular example is his series of articles on a mathematical model of blood cell reproduction, presented with the Award of the

Division of Medical Sciences of Polish Academy of Sciences in 1977. The series was co-edited with Professor Maria Ważewska-Czyżewska who applied those results in the treatment of certain types of drug-induced anemia. It was a very important accomplishment.

> In her therapies Professor Ważewska used the solutions of differential equations we studied, which substantially helped several patients with drug-induced anemia. If my work has had a minimal impact on it, it might have been the most worthwhile thing I have done in my life.
>
> Maria Ważewska was an incredibly honest scientist. She had enormous hematological knowledge and, at the same time, she knew that some mechanisms in hematology could be described mathematically. She reached a point where she lacked the mathematical tools and she told me about it. And I had sleepless nights over it. After some time, I proposed several models and she picked those of my ideas which she considered to be most interesting biologically, often leading me to despair, as because of her honesty we had to throw out some beautiful, but just slightly wrong models. What did we obtain in the end? We constructed a model, which in the language of mathematics would be called a nonlinear differential equation with a delayed argument. It has certain properties which escape, or even contradict, common sense. In that case, as Opial used to say, mathematics is smarter than the mathematician.

Models of growth and differentiating of the red blood cells were studied by Biomathematics Department on the University of Silesia, chaired by Professor Lasota, jointly with the Center of Nonlinear Dynamics of the McGill University in Montreal, led by his friend Professor Michael C. Mackey.

> A string of coincidences brought together me and Mackey; we became close friends, and without such friendship there is no way to collaborate scientifically. It has to work in such a way that if I wake him up at midnight because I need to discuss a problem with someone, he will first say: Man, are you insane? What are you on about? And then: Let's get to work! One cannot work by a schedule. We would go skiing together... and the children would ski and we would be writing a book.

Collaboration with M. C. Mackey resulted in the monograph *Probabilistic Properties of Deterministic Systems*, which was published in 1985 by Cambridge University Press.


**Photo 14.** *Probabilistic Properties of Deterministic Systems*
**Photo 15.** *Chaos, Fractals, and Noise Stochastic Aspect of Dynamics*

The second, extended edition of the monograph, with a new title *Chaos, Fractals, and Noise. Stochastic Aspects of Dynamics* was published in the prestigious series "Applied Mathematical Sciences" from Springer-Verlag. For this monograph Professor Lasota received the indivudual award of the Ministry of National Education. To the scientists researching diverse fields this outstanding book – as it was praised in *Mathematical Reviews* – demonstrates how to investigate nonlinear dynamic systems, using the theory of linear operators and probability theory.

**Photo 16.** Professors Andrzej Lasota and James A. Yorke, Maryland, 1982

According to one of the leading American specialists, James A. Yorke, Professor Lasota's approach to probabilistic treatment of dynamical systems "was adopted by the Berkeley school of dynamics and became one of the foundations of nonlinear dynamics."


**Photo 17, 18.** Professors Andrzej Lasota, James A. Yorke, and Michael C. Mackey. The Banach Center of the Polish Academy of Sciences, Będlewo, 2002

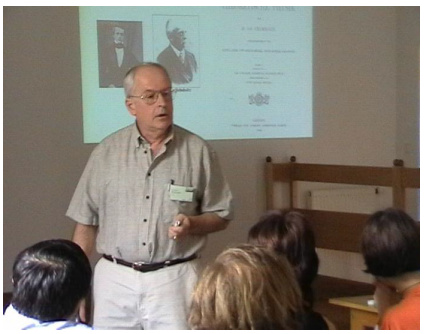
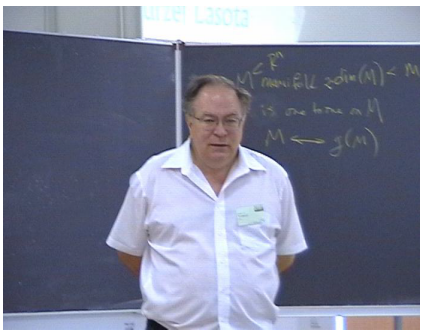



**Photo 19, 20.** Professors Michael C. Mackey and James A. Yorke during the conference on Professor Andrzej Lasota's 70th birthday. The Banach Center of the Polish Academy of Sciences, Będlewo, 2002

One hundred and forty-two published papers and a monograph is a clear evidence of Professor Lasota's contribution to science. He is also the author of many essays and survey articles.

Invitations to special lectures were the testimony of appreciation of his works. He presented his talks:

- at the International Congress of Mathematicians in 1983 in Warsaw; according to Professor Stanisław Łojasiewicz: "It's an honor of the world scale, given only to few";

- the Władysław Orlicz lecture in Collegium Mathematicum at Adam Mickiewicz University in Poznań in 2000;


**Photo 21.** Władysław Orlicz medal awarded to Professor Andrzej Lasota

- the Wacław Sierpiński lecture at the Warsaw University in 2002, he was also awarded the Sierpiński Medal for exceptional contributions to science.


**Photo 22, 23.** Wacław Sierpiński medal awarded to Professor Andrzej Lasota (obverse and reverse)

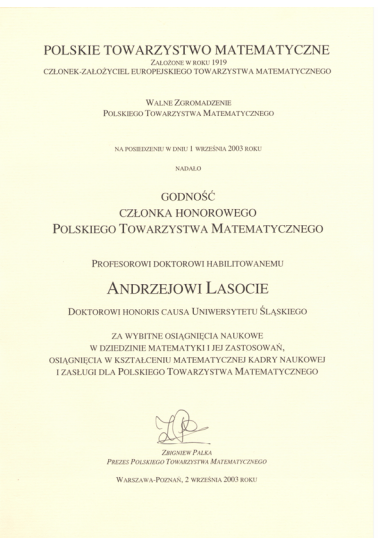
In recognition of his achievements, by a decree on May 22, 2001, the University of Silesia Senate bestowed on Professor Andrzej Lasota the title of Doctor Honoris Causa of the University of Silesia. In the laudation we read: "the mathematics created by our Venerable Doctorand is of highest grade. His achievements are profound and exceptionally original [...]."

**Photo 24.** The University of Silesia conferred the title of Doctor Honoris Causa to Professor Lasota. Presenting the award is Chancellor Professor Janusz Janeczek (The Silesian Parliament Hall of the Provincial Office, Katowice, November 10, 2001)


**Photo 25.** "Mathematics of strange objects" – Professor Andrzej Lasota's lecture during the celebrations of his Honorary Doctorate Award, November 10, 2001

**Photo 26.** In the Hunting Lodge of Dukes of Pszczyna in Promnice during the celebrations of his Honorary Doctorate Award, November 10, 2001

On September 1, 2003, the General Assembly of the Polish Mathematical Society nominated Professor Andrzej Lasota a Honorary Member of the Society, in recognition of his outstanding contribution to mathematics and its applications, his accomplishments in education and his services for the Society. Professor Lasota was a member of the Society since 1956 and was the vice-president of it in 1981–1983.



POLSKIE TOWARZYSTWO MATEMATYCZNE
ZAŁOŻONE W ROKU 1919
CZŁONEK-ZAŁOŻYCIEL EUROPEJSKIEGO TOWARZYSTWA MATEMATYCZNEGO

WALNE ZGROMADZENIE
POLSKIEGO TOWARZYSTWA MATEMATYCZNEGO

NA POSIEDZENIU W DNIU 1 WRZEŚNIA 2003 ROKU

NADAŁO

GODNOŚĆ
CZŁONKA HONOROWEGO
POLSKIEGO TOWARZYSTWA MATEMATYCZNEGO

PROFESOROWI DOKTOROWI HABILITOWANEMU

ANDRZEJOWI LASOCIE

DOKTOROWI HONORIS CAUSA UNIWERSYTETU ŚLĄSKIEGO

ZA WYBITNE OSIĄGNIĘCIA NAUKOWE
W DZIEDZINIE MATEMATYKI I JEJ ZASTOSOWAŃ,
OSIĄGNIĘCIA W KSZTAŁCENIU MATEMATYCZNEJ KADRY NAUKOWEJ
I ZASŁUGI DLA POLSKIEGO TOWARZYSTWA MATEMATYCZNEGO

ZBIGNIEW PAŁKA
*PREZES POLSKIEGO TOWARZYSTWA MATEMATYCZNEGO*

WARSZAWA-POZNAŃ, 2 WRZEŚNIA 2003 ROKU

**Photo 27.** Diploma certified to the Honorary Member of the Polish Mathematical Society degree by Professor Lasota

Professor Lasota received a number of decorations, including:

- Knight's Cross of the Order of Polonia Restituta (the second highest among the civilian decorations of the Republic of Poland), 1974;
- Medal of Commission of National Education, 1976;
- Officer's Cross of the Order of Polonia Restituta, 1988.

A particularly prestigious was the 2004 Prime Minister's Award, presented to Professor Lasota for his outstanding scientific achievements.


**Photo 28.** Professor Andrzej Lasota with Doctor Henryk Gacki during the ceremony of Prime Minister's Award

**Photo 29.** From the left: Janusz Traple, Zdzisław Denkowski, Jacek Bochniak, Andrzej Lasota, and Franciszek Szafraniec

Professor Lasota promoted 20 doctoral dissertations. Most of those doctors already obtained a habilitation degree; seven of them received the title of a professor. It is worth mentioning that he lived to see the habilitations of students of his students. In his work he always tried to abide by the frequently mentioned rule formulated by Professor Ważewski:

> Great professors have one major flaw: they drag others too much in their own direction, but directions in science change. Ważewski was an exception. He tasked me to lecture on new things, which he knew nothing about but knew they were important. The best students are not those who do exactly the same things as their mentor. They need to find their own path.

Looking at the achievements of his students, one can confidently say he applied that rule very well.

The inspiring position of the Professor has been recognised abroad. He was invited to international mathematical conferences and asked to deliver plenary lectures. Prestigious foreign science institutions invited Professor Lasota a number of times for research visits and lectures. He visited the following academic centers:

- Dipartimento di Matematica "Ulisse Dini," Universita degli Studi di Firenze, Italy; 1968; 1975;
- The Institute of Fluid Dynamics and Applied Mathematics, University of Maryland, USA: 1969–1970;
- Department of Physiology, McGill University, Montreal, Canada; 1979; 1981;
- Dipartimento di Matematica, Universita degli Studi di Udine, Italy; 1981;
- Institute of Mathematics, Michigan State University, USA; 1982–1983;
- Institute of Mathematics, University of Oxford, England; 1988;
- Institute for Physical Science and Technology, University of Maryland, USA; 1991.

Professor Lasota visited Dipartimento di Matematica Pura ed Applicata, Universita degli Studi di L'Aquila in Italy particularly often. He was invited there in 1992, 1994, 1995, 1996, 1997, 1999, 2000, 2001, 2003. His stay in L'Aquila in 2005 was his last scientific visit abroad.

**Photo 30.** L'Aquila 2005, Professor Andrzej Lasota with Doctor Henryk Gacki, Professor's last stay abroad

**Photo 31.** L'Aquila 2005, following John Paul II, San Pietro della Ienca

Among the conferences in Poland Professor Lasota had a special sentiment for the Conference on Applications of Mathematics, becoming a member of its Program Committee and Organisational Committee. On that conference, organized annually from 1972 by the Institute of Mathematics of the Polish Academy of Sciences and the Polish Mathematical Society, Professor Lasota gave numerous interesting lectures on the applications of mathematics. The last one he was supposed to take part in was in September 2006 in Zakopane – Kościelisko. Unfortunately, due to his failing health he was not able to attend.

**Photo 32.** Hotel Siwarna in Zakopane – Kościelisko, where the conferences on Applications of Mathematics have been taking place since 1991

Professor Lasota was a demanding teacher, but he was most demanding to himself. His seminars were extremely popular, featuring deep analysis of the presented topics, while at the same time, putting emphasis on freedom of expression and thought exchange, seasoned with jokes, but always up to the point. People enjoyed them and they liked the Professor, who was fond of saying "my recipe for success has two parts: be lucky with people and appreciate it. I was very lucky."

Professor Andrzej Lasota enjoyed a well-deserved respect in the scientific community. He had the rare knowledge of when the truth could and when it should be said. But, first and foremost, he was a good, open-minded and helpful man. He was a great husband, father and friend. It was his warmth and cordiality that were remembered most often during his funeral, which took place on January 6, 2007, in Cracow. Apart from his family, a great crowd of people arrived at Rakowicki Cemetery: his students, collaborators, friends and associates from many universities – including the chancellors of the University of Silesia and the Jagiellonian University, as well as from the Polish Academy of Sciences. They came to bid farewell not only to a great mathematician, but to a great man as well.

# List of Publications

## Monographs, scientific publications, articles, essays, and others

### Monographs

[1] Andrzej Lasota, Michael C. Mackey. *Probabilistic Properties of Deterministic Systems*. Cambridge University Press 1985.

[2] Andrzej Lasota, Michael C. Mackey. *Chaos, Fractals, and Noise*. Springer-Verlag 1994.

### Scientific publications

[1] Gwiaździstość zbioru określoności funkcji uwikłanych. Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Matematyka-Fizyka-Chemia 1 (1955), 25–29.

[2] Sur une généralisation d'un probleme de Z. Szmydt concernant l'équation $u^{xy} = f(x, y, u, u_x, u_y)$. *Bulletin de l'Académie Polonaise des Sciences* Cl. III 5 (1957), 15–18.

[3] Sur un nouveau probleme aux limites relatif a l'équation de la corde vibrante. *Bulletin de l'Académie Polonaise des Sciences* Cl. III 5 (1957), 843–846.

[4] Sur l'effet épidermique extérieur et intérieur pour les inégalités différentielles ordinaires. *Annales Polonici Mathematici* 6 (1959), 259–264.

[5] Sur l'existence et l'unicité des solutions d'un probleme de Mlle Z. Szmydt relatif a l'équation de la corde vibrante en fonction de la position du point initial. *Annales Polonici Mathematici* 9 (1960), 49–53.

[6] O związku między problemami początkowymi i brzegowymi dla równania różniczkowego zwyczajnego $n$-tego rzędu. Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Matematyczne 5 (1959), 59–65.

[7] O pewnym kryterium identyczności pól sił potencjalnych na prostej. Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Matematyczne 6 (1961), 35–40.

[8] O zbieżności do zera całek oscylujących równania różniczkowego zwyczajnego rzędu drugiego. Zeszyty Naukowe Uniwersytetu Jagiellońskiego. Prace Matematyczne 6 (1961), 27–33.

[9] Sur un probleme d'interpolation pour l'équation différentielle ordinaire d'ordre $n$ (co-author: Z. Opial). *Bulletin de l'Académie Polonaise des Sciences.* Série des Sciences Mathématiques, Astronomiques et Physiques 9 (1961), 667–671.

[10] Sur la relation entre le probleme de Goursat, le probleme de Cauchy et le probleme mixte pour l'équationde la corde vibrante. *Annales Polonici Mathematici*, 12 (1962), 175–183.

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**Professor Andrzej Lasota's Ph.D. students**

1. Prof. Zdzisław Denkowski (1969)
2. Prof. Józef Myjak (1972)
3. Prof. Janusz Traple (1972)
4. Dr. Antonina Spisak–Gamble (1974)
5. Prof. Marian Jabłoński (1975)
6. Prof. Jan Malczak (1975)
7. Dr. Józef Piórek (1975)
8. Prof. Krystyna Twardowska (1976)
9. Prof. Antoni Leon Dawidowicz (1980)
10. Prof. Tomasz Dłotko (1980)
11. Prof. Piotr Bugiel (1987)
12. Dr. Zbigniew Kiełek (1987)
13. Prof. Ryszard Rudnicki (1987)
14. Dr. Krzysztof Łoskot (1989)
15. Prof. Joanna Tyrcha (1989)
16. Prof. Katarzyna Horbacz (1993)
17. Dr. Jolanta Socała (1997)
18. Prof. Tomasz Szarek (1999)
19. Prof. Marta Tyran-Kamińska (1999)
20. Dr. Joanna Jaroszewska (2004)